

Claims:

1. A water supply apparatus in which an apparatus body is disposed in a midst of a flow passage for supplying water to an indoor facility and a power generating unit is installed in the apparatus body, the power generating unit comprising:

a rotating shaft extended in the direction perpendicular to the water flow direction of the flow passage;

an impeller mounted on the rotating shaft and rotated by a water flow;

a magnet rotated interlockingly with the impeller;
and

a coil arranged to face the magnet in the opposed manner,
wherein

the impeller forms blades in the outward radial direction and forms clearances allowing water to pass the inside of the blades.

2. A water supply apparatus according to claim 1, wherein the power generating unit is inserted into the apparatus body from an opening portion formed on the apparatus body and a distal end portion of the power generating unit is supported in a state that the distal end portion is fitted in an inner surface of the apparatus body which faces the opening portion of the apparatus body in an opposed manner.

3. A water supply apparatus according to claim 1 or claim 2, wherein in the power generating unit, the magnet is disposed inside the flow passage and the coil is disposed

outside the flow passage in a hermetically partitioned manner from the flow passage.

4. A water supply apparatus according to any one of claims 1 to 3, wherein the power generating unit includes intrusion suppression means which suppresses the intrusion of foreign substances between the blades and the magnet.

5. A water supply apparatus according to claim 4, wherein the intrusion suppression means is constituted by forming spear-headed thread-like grooves capable to generating water flow which pushes back the foreign substance to the blade side due to the rotation of the impeller on an outer periphery of the impeller.

6. A water supply apparatus according to any one of claims 1 to 5, wherein the power generating unit arranges the rotating shaft on a center axis of the flow passage.

7. A water supply apparatus according to any one of claims 1 to 6, wherein clearances are formed between outer peripheries of the blades and an inner wall of the flow passage in a state that the clearances are arranged asymmetrical with respect to an axis of the rotating shaft.

8. A water supply apparatus according to any one of claims 1 to 7, wherein the power generating unit forms a cylindrical portion is formed along outer peripheries of the blades.

9. A water supply apparatus according to claim 8, wherein a guide member which guides water toward the impeller is formed above the cylindrical portion.

10. A water supply apparatus according to claim 9, wherein a second guide member which guides water toward the impeller is arranged at a position where the second guide member faces the guide member in an opposed manner with the rotary shaft sandwiched therebetween.